IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

PATENT APPLICATION

Appellant:	**Donald F. Gordon**		
Case:	**SEDN/175**	Filed:	**October 24, 2000**
Serial No.:	**09/695,898**	Confirmation #:	**3377**
Examiner:	**LEE, Y. YOUNG**	Group Art Unit:	**2621**
Title:	**METHOD AND APPARATUS FOR PERFORMING DIGITAL-TO-DIGITAL VIDEO INSERTION**		

MAIL STOP APPEAL BRIEF-PATENTS
Commissioner for Patents
P.O. Box 1450
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SIR:

APPEAL BRIEF

Appellant submits this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 2621 dated October 22, 2007 finally rejecting claims 1-2, 5, 7-15 and 17-18.

In the event that an extension of time is required for this appeal brief to be considered timely, and a petition therefor does not otherwise accompany this appeal brief, any necessary extension of time is hereby petitioned for.

The Commissioner is authorized to charge the Appeal Brief fee **($255)** and any other fees due to make this filing timely and complete (including extension of time fees) to Deposit Account No. 20-0782/SEDN/175.

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Real Party in Interest

The real party in interest is SEDNA PATENT SERVICES, LLC.

Related Appeals and Interferences

Appellant asserts that no appeals or interferences are known to Appellant, Appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1-2, 5, 7-15 and 17-18 are pending in the application. Claims 1-20 were originally presented in the application. Claim 21 was added by amendment. Claims 3-4, 6, 16 and 19-21 were canceled without prejudice. Claims 1-2, 5, 7-15 and 17-18 stand finally rejected as discussed below. The final rejection of claims 1-2, 5, 7-15 and 17-18 is appealed.

Status of Amendments

All claim amendments have been entered.

Summary of Claimed Subject Matter

Embodiments of the present invention generally are directed to methods for seamlessly inserting a second compressed video stream into a first compressed video stream, which can be implemented in an insertion processor that typically includes a real time encoder, a buffer, a profiler, a multiplexer, and a splicer. The profiler receives the first compressed video stream and provides a profile for the stream, which may include bit rate and other information about the stream. The real time encoder receives and encodes a second video in accordance with a particular encoding scheme to generate the second compressed video stream. The real time encoder further controls the encoding of the second video based at least in part on the profile of the first compressed video stream such that the profiles for the two streams are approximately similar at the point in time the second stream is inserted into the first stream. The buffer stores the first compressed video stream from the real time encoder until it is needed. The multiplexer inserts the second compressed video stream into the first compressed video stream, and the splicer splices the two streams together to form the output video stream. (See Abstract.)

For the convenience of the Board of Patent Appeals and Interferences, Appellant's independent claims 1 and 14 are presented below in claim format with elements reading on the various figures of the drawings and appropriate citations to at least one portion of the specification for each element of the appealed claims.

Claim 1 positively recites (with reference numerals, where applicable and cites to at least one portion of the specification added):

1. A method comprising: (FIG. 4; p.10, lines 10-33)

receiving a first compressed video stream; (412)

determining a first encoding profile for the first compressed video stream; (414)

encoding a second video stream (418) in accordance with an encoding parameter associated with the first compressed video stream to generate a second compressed video stream having a second encoding

profile which matches the first encoding profile to within a requisite degree (420, 424), wherein a profiler continuously tracks the encoding parameter associated with the first compressed video stream for instant parameter changes; (p. 10, lines 16-26)

splicing the second compressed video stream into the first compressed video stream to produce a spliced stream, (426)

wherein the requisite degree of matching between the second encoding profile and the first encoding profile is selected such that the spliced video stream can be decoded without producing visible artifacts on a display during or after a transition from a first compressed video stream portion of the spliced stream to a second compressed video stream portion of the spliced stream, (p.2, lines 21-28)

wherein the encoding of the second video is controlled such that the second encoding profile approximately matches the first encoding profile at approximately a point in time when the second compressed video stream is spliced into the first compressed video stream, (p.3, lines 21-25; p.9, lines 11-15)

wherein the encoding of the second video is further controlled such that the second encoding profile approximately matches the first encoding profile at approximately a point in time when the first compressed video stream is spliced back into the spliced stream. (p.4, lines 4-9; p.8, lines 30-34)

Claim 14 positively recites (with reference numerals, where applicable and cites to at least one portion of the specification added):

14. A system operative to splice a second compressed video stream into a first compressed video stream, comprising: (FIGS. 2-4; p.5, line 25 to p.10, line 33)

a profiler (310) configured to receive the first compressed video stream and to provide a first encoding profile for the first compressed video stream; (p.6, lines 21-24)

a real time encoder (202, 202x) coupled to the profiler (310) and configured to receive and encode a second video in accordance with an encoding parameter associated with the first compressed video stream to generate the second compressed video stream having a second encoding profile matching the first encoding profile to within a requisite degree, (p.8, lines 4-10) wherein the profiler (310) continuously tracks the encoding parameter associated with the first compressed video stream for instant parameter changes; (p.6, line 31 to p.7, line 5) and

a multiplexer (312) and splicer (314) operatively coupled to the real time encoder (202x) and operative to receive the second and first compressed video streams, to splice the second compressed video stream into the first compressed video stream, (p.7, line 33 to p.8, line 3)

wherein the requisite degree of matching between the second encoding profile and the first encoding profile is selected such that the spliced video stream can be decoded without producing visible artifacts on a display during or after a transition from a first compressed video stream portion of the spliced stream to a second compressed video stream portion of the spliced stream, (p.2, lines 21-28)

wherein the real time encoder (202x) is further configured to control the encoding of the second video such that the second encoding profile approximately matches the first encoding profile at approximately a point in time when the second compressed video stream is spliced into the first compressed video stream, (p.3, lines 21-25; p.9, lines 11-15)

wherein the real time encoder (202x) is further configured to control the encoding of the second video such that the second encoding profile approximately matches the first encoding profile for the first compressed video stream at approximately a point in time when the first compressed video stream is spliced back into the second compressed video stream. (p.4, lines 4-9; p.8, lines 30-34)

Grounds of Rejection to be Reviewed on Appeal

The Examiner has rejected claims 1-2, 5, 7-15 and 17-18 under 35 U.S.C. §103(a) as being unpatentable over Yang et al. (U.S. Patent No. 6,005,620, hereinafter "Yang') in view of Egawa et al. (U.S. Patent No. 5,534,944, hereinafter "Egawa").

ARGUMENTS

35 U.S.C. §103(a) Rejection of Claims 1, 2, 5, 7-15, 17, and 18

The Examiner has rejected Claims 1, 2, 5, 7-15, 17, and 18 under 35 U.S.C. §103(a) as being unpatentable over Yang et al. (US 6,005,620, hereinafter "Yang") in view of Egawa et al. (US 5,534,944, hereinafter "Egawa"). The rejection is respectfully traversed.

Applicants' claim 1 recites, in part:

> "encoding a second video stream in accordance with an encoding parameter associated with the first compressed video stream to generate a second compressed video stream having a second encoding profile which matches the first encoding profile to within a requisite degree, wherein a profiler continuously tracks the encoding parameter associated with the first compressed video stream for instant parameter changes;
>
> splicing the second compressed video stream into the first compressed video stream to produce a spliced stream,
>
> wherein the requisite degree of matching between the second encoding profile and the first encoding profile is selected such that the spliced video stream can be decoded without producing visible artifacts on a display during or after a transition from a first compressed video stream portion of the spliced stream to a second compressed video stream portion of the spliced stream,
>
> wherein the encoding of the second video is controlled such that the second encoding profile approximately matches the first encoding profile at approximately a point in time when the second compressed video stream is spliced into the first compressed video stream,
>
> wherein the encoding of the second video is further controlled such that the second encoding profile approximately matches the first encoding profile at approximately a point in time when the first compressed video stream is spliced back into the spliced stream." (emphases added.)

The Examiner cited Yang's Figure 4 as teaching a statistical multiplexer for live and pre-compressed video that is allegedly substantially the same system and method as in Appellant's claims 1-2, 5, 7-15 and 17-18 (page 3, Final Office

Action, October 22, 2007, hereinafter "Final Office Action"). Appellant respectfully disagrees.

Specifically, Appellant disagrees with the Final Office Action's characterization of Yang as teaching:

(I) the encoding of the second video stream 32 being done "in accordance with an encoding parameter 44 associated with the first compressed stream 30 to generate a second compressed video stream 52 having a second encoding profile which matches the first encoding profile to within a requisite degree" (page 3, Final Office Action, emphasis added).

(II) "splicing the second compressed video stream (52) into the first compressed video stream 30 to produce a spliced stream 34" (page 3, Final Office Action, emphasis added).

(III) the encoding of the second video stream being controlled "such that the second encoding profile approximately matches the first encoding profile at approximately a point in time when the second compressed video stream 32 is spliced into the first compressed video stream 30, wherein the encoding of the second video 32 is further controlled such that the second encoding profile 52 approximately matches the first encoding profile at approximately a point in time (e.g., 40) when the first compressed video stream 30 is spliced back into the spliced stream 34" (bottom of page 3, Final Office Action, emphases added.)

First, there is nothing in Yang that teaches the live video stream from video source 32 being encoded with a profile that matches the encoding profile of the pre-compressed stream from source 30.

Second, Yang teaches only multiplexing of two signals, but not splicing of two video streams.

Third, Yang does not teach the second encoding profile matching the first encoding profile at approximately a point in time when one stream is spliced to the other.

Instead, all that Yang teaches, in Figure 4 and Figure 5, is an apparatus and a method for multiplexing video streams from video sources 30 and 32, in which the degree of compression of live video signals from source 32 is determined based on the available bandwidth (col. 4, lines 32-67).

However, determining the degree of compression based on available bandwidth and multiplexing the two streams does not mean that the encoding profile of the second stream is matched in anyway to that of the first stream to within a requisite degree, and certainly does not teach matching at a point in time when one video stream is spliced into the other video stream.

In Fig. 4, Yang teaches that the bandwidth for the pre-compressed video signals from source 30 is determined based on the complexity signals, which are determined by complexity detector 40 and representative of the complexity of the pre-compressed signals (col. 3, lines 10-19 and col. 4, lines 33-37). The remaining bandwidth (i.e., subtracting the bandwidth of pre-compressed signals from the total bandwidth) is available for the live video signals from sources 32 (col. 4, lines 38-41).

The live video signals from sources 32 are then compressed at a factor that is determined based on the available bandwidth and complexity signals (determined by detectors 78) for the live signals from sources 32. The compressed live video signals and the pre-compressed signals are then multiplexed in multiplexer 34 (Fig. 4).

Note that Yang's multiplexing of two signals from sources 30 and 32 is different from splicing two video streams. Multiplexing refers simply to combining two signals together to produce a single output, e.g., the signal output from multiplexer 34.

Splicing, on the other hand, refers to combining two streams sequentially in time, such that there is a time at which one stream transitions into the other stream, i.e., when a second stream is spliced to the first stream.

Thus, contrary to what was stated on page 3 of the Final Office Action -- i.e., "splicing the second compressed video stream (52) into the first compressed video stream 30 to produce a spliced stream 34", there is no teaching in Yang's Fig. 4 of splicing one video stream to another to produce a spliced stream. Yang only teaches multiplexing of two signals, but not splicing of a one compressed stream into the other.

Although Yang teaches that the live video signals are encoded so as to fit within the available bandwidth, there is nothing in Yang that teaches the encoding of the second stream so that its encoding profile matches that of the pre-compressed stream at any point in time corresponding to the splicing or transition between the two streams.

Thus, not only is there no teaching in Yang's Fig. 4 regarding the matching of the encoding profile of the second video stream to that of the first pre-compressed stream, there is also no teaching of any splicing of two compressed video streams, or any details of matching the encoding profile of one stream at a point in time of the splicing of the two streams, such as those provided in Appellant's claim 1:

> "wherein the requisite degree of matching between the second encoding profile and the first encoding profile is selected such that the spliced video stream can be decoded without producing visible artifacts on a display during or after a transition from a first compressed video stream portion of the spliced stream to a second compressed video stream portion of the spliced stream,
>
> wherein the encoding of the second video is controlled such that the second encoding profile approximately matches the first encoding profile at approximately a point in time when the second compressed video stream is spliced into the first compressed video stream,
>
> wherein the encoding of the second video is further controlled such that the second encoding profile approximately matches the first encoding profile at approximately a point in time when the first compressed video stream is spliced back into the spliced stream."

The Examiner stated that Yang does not particularly disclose any details of the requisite degree of matching as specified in claims 1-2, 5, 7-15 and 18 (page 4, the Final Office Action). Thus, Egawa's Figs. 2-4 and 7 were cited as allegedly teaching the "well known degree of matching between the second encoding profile (e.g., AU2) and the first encoding profile (e.g., AU1) is selected such that the spliced video stream can be decoded without producing visible artifacts on a display during or after a transition from a first compressed video stream portion of the spliced stream to a second compressed video stream portion of the spliced stream" (page 4, lines 5-8, Final Office Action).

Appellant respectfully disagrees with this interpretation of Egawa, and submits that Egawa also fails to remedy the above deficiencies in Yang.

Egawa teaches a method of splicing two compressed video signals by inserting an amount of null information between the two signals in order to avoid buffer overflow (see Egawa's Abstract).

In Egawa, the various parameters associated with the two compressed or encoded streams (Stream 1 and Stream 2, Figs. 4-7) are parameters associated with splicing the encoded Stream 2 to the encoded Stream 1. They are not encoding parameters or encoding profile for Stream 2 that matches the encoding profile of Stream 1.

Instead, Egawa teaches that the two encoded video streams are spliced by inserting an amount of null information between the two streams in order to avoid buffer overflow, with the amount of null information being "determined from the data rates of the first and second compressed video signals and the amount of new data which is provided to the buffer before the data is retrieved from the buffer for both the first and second video signals" (Egawa's Abstract). The null information is inserted as sequence stuffing bits into a buffer immediately after the selected picture in the first video signal, and the second video signal is transmitted to the buffer immediately after these stuffing bits (Egawa's Abstract).

Egawa's Figs. 5-7 provide additional details for splicing the two encoded streams, Stream 1 and Stream 2 as follows:

1) sending the two compressed, i.e., encoded, Stream 1 and Stream 2, at their respective original bit rates, to buffer 414 for gathering information about the streams for determination of splicing parameters (Fig. 5; col. 5, line 30 to col. 6, line 48);

2) based on the gathered information, determining an appropriate number of stuffing bits to be inserted between the two streams (Fig. 6; col. 6, line49 to col. 7, line 4); and

3) sending Stream 1 and Stream 2 to buffer 416 for the actual splicing, with the number of stuffing bits inserted between the two compressed streams (Fig. 7; col. 7, lines 5-61).

Fig. 6 also teaches (in steps 612-620) the calculation of NSTUFF, which is the number of stuffing bits to be inserted between the already-encoded streams.

Unlike Applicant's claimed invention, the parameter NSTUFF or those calculated in steps 614 and 616, are not encoding parameters used for encoding Stream 2 for matching with the encoding profile of Stream 1.

In fact, there is no need for Egawa to calculate any encoding profile for Stream 2, because, as taught in Egawa's col. 5, lines 11-20, Stream 2 received by processor 412 is already encoded, e.g., by a conventional HDTV or MPEG-2 encoder.

As such, there is simply no teaching in Egawa's Figs. 4-7 regarding any encoding profile for Stream 2 to match the encoding profile of Stream 1, or encoding Stream 2 in the manner provided in Applicant's invention, namely, by providing a second encoding profile for the second stream to match the first encoding profile of the first compressed stream to within a requisite degree.

In sum, Egawa's teaching is directed to splicing two already-encoded streams, and thus, it only addresses how the two encoded streams can be spliced together. Egawa does not teach how either of the streams should have been encoded, e.g., with encoding profile of one stream matching that of the

other stream at a point in time when one stream is spliced to the other, as provided in Applicant's claimed invention.

Thus, even if Yang and Egawa were combined, there is still no teaching of encoding the second video stream to match the encoding profile of the first compressed stream in the specific manner provided in Appellant's claim 1.

Therefore, claim 1 is not obvious over Yang in view of Egawa, and is patentable under 35 U.S.C. §103.

Since independent claim 14 includes relevant limitations similar to those discussed above in regards to claim 1, claim 14 is also not obvious over Yang in view of Egawa, and is patentable under 35 U.S.C. §103.

Furthermore, claims 2, 5, 7-13, 15, and 17-18 depend, either directly or indirectly, from independent claims 1 and 14 respectively, and recite additional limitations thereof. As such and for at least the same reasons as discussed above, these dependent claims are also not obvious over Yang in view of Egawa, and are patentable under 35 U.S.C. §103.

Therefore, the Examiner is respectfully requested to withdraw the rejection.

CONCLUSION

Thus, Appellant submits that none of the claims presently in the application are allowable under the provision of 35 U.S.C. §102.

For the reasons advanced above, Appellant respectfully urges that the rejections of claims 1-2, 5, 7-15 and 17-18 are improper. Reversal of the rejections of the Final Office Action is respectfully requested.

Respectfully submitted,

1/28/08
Date

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CLAIMS APPENDIX

1. (previously presented) A method comprising:

receiving a first compressed video stream;

determining a first encoding profile for the first compressed video stream;

encoding a second video stream in accordance with an encoding parameter associated with the first compressed video stream to generate a second compressed video stream having a second encoding profile which matches the first encoding profile to within a requisite degree, wherein a profiler continuously tracks the encoding parameter associated with the first compressed video stream for instant parameter changes;

splicing the second compressed video stream into the first compressed video stream to produce a spliced stream,

wherein the requisite degree of matching between the second encoding profile and the first encoding profile is selected such that the spliced video stream can be decoded without producing visible artifacts on a display during or after a transition from a first compressed video stream portion of the spliced stream to a second compressed video stream portion of the spliced stream,

wherein the encoding of the second video is controlled such that the second encoding profile approximately matches the first encoding profile at approximately a point in time when the second compressed video stream is spliced into the first compressed video stream,

wherein the encoding of the second video is further controlled such that the second encoding profile approximately matches the first encoding profile at approximately a point in time when the first compressed video stream is spliced back into the spliced stream.

2. (previously presented) The method of claim 1, further comprising:

determining the second encoding profile for the second compressed video stream.

3-4. (cancelled)

5. (previously presented) The method of claim 1, wherein splicing includes

initially multiplexing the first compressed video stream as an output video stream;

multiplexing the second compressed video stream as the output video stream at a point in time when the inserting is to be achieved; and

splicing the second compressed video stream to the first compressed video stream.

6. (cancelled)

7. (previously presented) The method of claim 1, further comprising:

receiving a control signal indicative of a time period within which the splicing is to be performed; and

initiating the encoding of the second video stream in response to receiving the control signal.

8. (previously presented) The method of claim 7, further comprising:

buffering the second compressed video stream prior to splicing.

9. (original) The method of claim 1, wherein the second video relates to an advertisement and the first compressed video stream relates to a program video.

10. (previously presented) The method of claim 1, wherein the first encoding profile includes bit rate information related to the first compressed video stream.

11. (original) The method of claim 10, wherein the bit rate information includes a high bit rate, a low bit rate, and a mean bit rate determined over a particular time period.

12. (previously presented) The method of claim 10, wherein the first encoding profile further includes video buffering verifier (VBV) buffer information used for the encoding.

13. (original) The method of claim 1, wherein the second video is encoded in accordance with an MPEG encoding scheme.

14. (previously presented) A system operative to splice a second compressed video stream into a first compressed video stream, comprising:

a profiler configured to receive the first compressed video stream and to provide a first encoding profile for the first compressed video stream;

a real time encoder coupled to the profiler and configured to receive and encode a second video in accordance with an encoding parameter associated with the first compressed video stream to generate the second compressed video stream having a second encoding profile matching the first encoding profile to within a requisite degree, wherein the profiler continuously tracks the encoding parameter associated with the first compressed video stream for instant parameter changes; and

a multiplexer and splicer operatively coupled to the real time encoder and operative to receive the second and first compressed video streams, to splice the second compressed video stream into the first compressed video stream,

wherein the requisite degree of matching between the second encoding profile and the first encoding profile is selected such that the spliced video stream can be decoded without producing visible artifacts on a display during or after a transition from a first compressed video stream portion of the spliced stream to a second compressed video stream portion of the spliced stream,

wherein the real time encoder is further configured to control the encoding of the second video such that the second encoding profile approximately matches the first encoding profile at approximately a point in time when the second compressed video stream is spliced into the first compressed video stream,

wherein the real time encoder is further configured to control the encoding of the second video such that the second encoding profile approximately matches the first encoding profile for the first compressed video stream at approximately a point in time when the first compressed video stream is spliced back into the second compressed video stream.

15. (previously presented) The system of claim 14, further comprising:

a buffer coupled to the real time encoder and the splicer and configured to receive and buffer the first compressed video stream from the real time encoder.

16. (Cancelled)

17. (previously presented) The system of claim 14, wherein the profiler is further configured to receive the second compressed video stream and provide the second encoding profile.

18. (previously presented) The system of claim 14, wherein the second encoding profile includes bit rate information related to the second compressed video stream.

19-21. (Cancelled)

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None